Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_

1. Perform the proper unit conversions in order to complete the chart

|  |  |
| --- | --- |
| Temperature ( °C) | Temperature (K) |
| -64 |  |
|  | 273 |
| 90 |  |
|  | 4 |
| 568 |  |
| -3 |  |
| 0 |  |
|  | 0 |

1. A sample of gas at 101.3 kPa had a volume of 1.2L at 100°C. What would its volume be at 0°C at the same pressure?
2. A balloon had a volume of 75L at 25°C. To what temperature does it need to be raised in order for the balloon to have a volume of 100L at the same pressure?
3. The temperature inside my refrigerator is about 4°C. If I place a balloon in my fridge that initially has a temperature of 22 and a volume of 0.5 liters, what will be the volume of the balloon when it is fully cooled by my fridge?
4. Some students believe that teachers are full of hot air. ☺ If I inhale 2.2 liters of gas at a temperature of 18°C and it heats to a temperature of 38°C in my lungs, what is the new volume of the gas?
5. A soda bottle is flexible enough that the volume of the bottle can change even without opening it. If you have an empty soda bottle (volume of 2L) at room temperature (25°C), what will the new volume be if you put it in your freezer (-4°C)?